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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,717	02/11/2004	Yoshiki Kino	1232-5283	2826
27123	7590	08/04/2005	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			GUTIERREZ, KEVIN C	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/776,717

Applicant(s)

KINO, YOSHIKI

Examiner

Kevin Gutierrez

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date October 6, 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Page 13, references 120A and 202A.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second concave part must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4, 5, 7, 8, 12, 13 and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyajima (US 2005/0073663).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Miyajima discloses "a cooling apparatus (fig. 3A, #23a-e and #24a-e and fig. 3B, #25a-f, are radiation plates, coolant pipes, and coolant), for use

with an optical element having a concave part (fig. 3B, #30 has a u-shaped curved surface), said cooling apparatus comprising a cooling mechanism located in the concave part of the optical element for cooling the optical element through radiation in a non-contact manner (fig. 3B, #25a-e are located at a distances where they are not in contact with #30 (mirror)).”

Regarding claim 2, Miyajima discloses

- “a base having a surface to be illuminated by light (fig. 3B, #2d and [0041], lines 8-9), and
- a first concave part (fig. 3B, #30 has a u-shaped curve surface); and
- a cooling mechanism, located in the first concave part, for cooling said base through radiation in a non-contact manner (fig. 3B, #25a-e are located at a distances where they are not in contact with #30 (mirror)).”

Regarding claim 4, Miyajima discloses “a radiation plate (fig. 3B, #25a-e) provided opposite to the base (fig. 3B, flat side of #30); and a Peltier element that cools the radiation plate ([0061], lines 11-12).”

Regarding claim 5, Miyajima discloses “wherein said cooling mechanism has a channel (fig. 3B, #23a-e) for coolant (fig. 3B, #a4a-e) to flow, and further includes a cooling jacket for recovering heat from the Peltier element ([0040], lines 10-13).”

Regarding claims 7 and 8, Miyajima discloses “wherein the base has a second concave part provided at a position different from that of the first concave part in a non-illuminated area (fig. 3B, where #2d (exposure light) does not illuminate #32 (support member), which is opposite to the surface to be illuminated).”

Regarding claim 12, Miyajima discloses “further comprising a mirror (fig. 3B, #30).”

Regarding claim 13, Miyajima discloses

- “a detector for detecting a temperature of said base (fig. 4, #27a (thermometer) is utilized for #27 (temperature detection unit); and
- a controller (fig. 4, #28) for controlling said cooling mechanism so that the temperature of said base detected by said detector becomes a predetermined value ([0043], lines 8-12).”

Regarding claims 15-18, Miyajima discloses the claimed limitations and further discloses “an exposure apparatus comprising an optical system for exposing a pattern formed on a mask or a reticle onto an object ([0002], lines 1-2 and lines 9-11)” and “developing the exposed object (fig. 12, step 4).”

5. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al (5,716,660).

Regarding claim 14, Mori et al discloses “an optical element comprising a surface to be illuminated by light, said optical element having a concave part opposite to the surface (fig. 5, #32 is illuminated by light beam provided by #1 (light source)).”

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 6, 9-11, are rejected under 35 U.S.C. 103(a) as being obvious over Miyajima in view of Loopstra et al (US 20001/0013925).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c)

as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 3, Miyajima discloses a concave part where the surface is to be illuminated. Miyajima does not disclose the concave part to be on the opposite side of the illuminated surface.

However it would have been obvious “wherein the surface has an area to be illuminated, and the first concave part is located opposite to the area on the surface” as taught by Loopstra et al (fig. 4, where the concave part is located between #525 and #530, which is also opposite to “W”). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Miyajima by having the concave part opposite to the illuminated surface for at least the purpose to utilize a different type of optical element.

Regarding claim 6, Miyajima discloses a cooling mechanism, but does not disclose a heat insulator to prevent the base from absorbing heat.

However, it would have been obvious “wherein said cooling mechanism further includes a heat insulator for preventing the base from absorbing heat obtained by the first concave part” as taught by Loopstra et al (fig. 4, #540 is a heat shield to prevent thermal load on to “WH” (substrate holder). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Miyajima by including a heat shield within the cooling mechanism for at least the purpose to maintain longer exposure intervals.



Regarding claim 9, Miyajima further discloses “wherein an interval between the area to be illuminated and the first concave part is made almost constant ([0065], lines 7-10).”

Regarding claim 10, Miyajima further teaches “wherein the first concave part has a shape that changes according to temperature distributions on the surface to be illuminated ([0037], lines 13-17, where temperature rise due to exposure causes displacement of surface).”

Regarding claim 11, Miyajima further discloses “wherein the cooling mechanism changes cooling power based on a position according to temperature distributions on the surface to be illuminated ([0039], lines 2-4).”

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Emoto (Us 2003/0035088) discloses an apparatus capable of heat transfer.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 7:30 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**William Perkey**  
Primary Examiner

July 27, 2005

~~David M. Gray  
Primary Examiner  
Art Unit 2804~~